Uva Wellassa University of Sri Lanka
Faculty of Science and Technology
Department of Computer Science and Technology
200 Level 2nd Semester Examination – Dec./Jan. 2017
CST284-1 Data Structures and Algorithrns Laboratory

Uva Wellassa University

Instructions to candidates
Duration: Two (02) hours
Number of questions: Two (02)
Mark allocation: 100
Answer all the questions
Create separate file for each question
ZIP all files in to a folder
Rename the ZIP folder with your Examination Number and upload to CMS.(e.g. UWU_EX_13_0001)
You are allowed to refer your own notes but **sharing notes** is **strictly prohibited.**

1. A common problem of compilers is to determine whether the brackets in a given string are balanced and properly nested.
   You are required to write a java program which returns 'true' if the user given string contains proper balanced and non-overlapping brackets – ( ) [ ] { } otherwise, returns 'false' (use an apropriate data structure).

   For example: "[N(ov)(emb)er]1st" return true
   "{Oc[t}ober2]3rd" returns false

   (30 mark)

2.
   a. Write a java program to store data which are shown in the Table 1 by using singly linked list where each node contains both name and corresponding phone number. In your java program new node should be inserted at the end of the linked list. (20 mark)

Table 1: Contact Detail List

No	Name	Phone Number
1	Kumari	0712345678
2	Chethaki	0771234567
3	Sangeeth	0723456789
4	Ayesha	0783457789
5	Buddhini	0763425678

   b. Write a method to sort the above linked list in ascending order by the name using **Bubble Sort** algorithm and print the sorted results. (30 mark)

   c. Write another method to find the middle of the sorted linked list which returns the address of the middle node. (20 mark)

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